

**A STUDY ON STRUCTURAL, MORPHOLOGICAL, AND OPTICAL PROPERTIES  
OF CDS THIN FILMS DEPOSITED USING CHEMICAL  
BATH DEPOSITION METHOD**

**R. A. SHANMUGAVADIVU<sup>1</sup>, J. YUVALOSHINI<sup>2</sup> & G. RAVI<sup>3</sup>**

<sup>1</sup>Department of Physics, Rajadoraisingam Government Arts College, Sivagangai, Tamil Nadu, India

<sup>2</sup>Department of Physics, Karaikudi Institute of Technology, Karaikudi, Tamil Nadu, India

<sup>3</sup>School of Physics, Alagappa University, Karaikudi, Tamil Nadu, India

**ABSTRACT**

*The structural, morphological, and optical properties of CdS thin films deposited using chemical bath deposition method are reported. The film was deposited on soda line glass substrates using EDTA as a complexing agent, in basic medium at 95 °C. The effects of annealing ranging from 100°C to 500°C on quality of CdS thin films were investigated. Annealing improves the crystalline nature and reduces the defects levels. The films were characterised by X- ray diffraction, scanning electron microscope, EDAX and UV- absorption. The XRD patterns show that as deposited CdS films were polycrystalline. The refractive-index, dielectric constant, optical conductivity and electrical conductivity were determined by various equations based on UV- absorption data. SEM micrograph shows the films are composed of largely regular grains. The band gap energy values of CdS thin films ranges from 2.77eV to 3.00eV. Compositional analysis by EDAX confirms that the sample with clear peaks of Cadmium (Cd) and Sulphur (S) are around the nominal composition.*

**KEYWORDS:** Semiconductor, Annealing, X-ray Diffraction (XRD), Scanning Electron Microscopy (SEM)

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